



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/507,920

10/19/2004

Ionescu Adrian Mihai

2590-100

6790

23117 7590 01/19/2007

NIXON & VANDERHYE, PC

901 NORTH GLEBE ROAD, 11TH FLOOR

ARLINGTON, VA 22203

EXAMINER

NHU, DAVID

ART UNIT

PAPER NUMBER

2818

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/507,920

Applicant(s)

MIHAI ET AL.

Examiner

David Nhu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.



Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTIONS

Claims Objection

1. Claim 1, "**the** use; **the** fact" lack a clear antecedent basis.

Claim 3, "XeF₂; BrF₃" should be -XeF₂ ; BrF₃ ---

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Krauss et al (6,422,077 B1), Brosnihhan et al (7,083,997 B2), and Loo et al (6,440,767 B1).

Regarding claim 1, Krauss, (see figure 1, col. 3, lines 60-67, col. 4, lines 1-67, col. 5, lines 1-34), teaches a process/method for manufacturing a MEMS 20 comprising using a sacrificial layer 16 (Si or SiO₂, see col. 5, lines 3-4) characterized by fact that the sacrificial layer is made of silicon (see col. 1, lines 15-20, col. 5, lines 3-4).

Regarding claim 1, Brosnihhan, (see figures 1c, 3, 4k, col. 2, lines 25-67, col. 3, lines 27-67, col. 4, lines 1-15, col. 6, lines 1-40, col. 7, lines 20-67, col. 8, lines 1-67), teaches a process/method for manufacturing a MEMS 100, 300, 400 comprising using a sacrificial layer 122, 322, 422 characterized by fact that the sacrificial layer is made of silicon.

Regarding claims 2-20, Brosnihhan, (see figures 2a-2j, 3, 4a-4j), Krauss (see figures 1-5), Loo (see figures 1-7), teaches the silicon sacrificial layer is removed by XeF₂; the silicon is in

Art Unit: 2818

polycrystalline and amorphous; MEMS containing a metal layer; a MEMS device architecture; SOI substrate and silicon with underneath substrate etched; a gate MOSFET; the metal is aluminum, copper, gold, platinum, titanium...; RF switch; capacitor sensor...; a high-k dielectric; using two metal 322, 330 levels, one fixed and one movable, called membrane, both capped with one insulator, with variable air gaps and an underlying insulator deposited on a semiconductor substrate (see Loo'767, figures 4A, 4B).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Wan'296, Loo'659 are cited as of interest.
5. A shortened statutory period for response to this action is set to expired 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned(see 710.02 (b)).
6. Any inquiry concerning this communication on earlier communications from the examiner should be directed to David Nhu (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM. *The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)273-8300.*

Information regarding the status of an application may be obtained from the patent application information retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 2818

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Nhu



January 8, 2007